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ABSTRACT

The relationship of family variables to locus of control, under the hypothesis that a larger and more cohesive family provides greater reinforcement for the elderly person's actions was investigated. Elderly persons (N=200) aged 60-90 were interviewed at home and given Rotter's I-E scale. In a regression analysis, after removing effects of age and socioeconomic status, number of living brothers, sibling cohesiveness, and child cohesiveness (where cohesiveness as a factor score made up of amount of contact, closeness of feeling, and values agreement) accounted for eight percent of variance in locus of control, with cohesiveness associated with greater internality. Cohesiveness, acting through locus of control, was identified as part of an adaptive mechanism in old age. (Author)

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RELATIONSHIP OF FAMILY BACKGROUND VARIABLES TO LOCUS OF CONTROL IN THE ELDERLY[1]

The concept of locus of control of reinforcement is one which has received considerable attention in studies of the elderly in recent years. Briefly, an individual's belief in the locus of control of a reinforcement (reward) following some action depends on whether or not he sees his action as bringing about the reward. If he sees the reward as due to fate, luck, chance, or powerful others, this is termed a belief in "external control," while if he sees that his own actions or characteristics bring about the reward, this is termed a belief in "internal control" (Rotter, 1966). Through a long series of reinforcement experiences, a generalized expectancy for the locus of control of reinforcement is built up. There is by now considerable evidence supporting the view that locus of control is a pervasive and long-standing personality characteristic which has a noticeable influence on the extent to which the individual will attempt to improve his environmental conditions.

Locus of control beliefs are of particular interest in the elderly, where the extent of actual control which the individual has over life events seems to be decreasing with age. Nevertheless, various investigators have found that an internal locus of control in old age is related to a greater life satisfaction (Palmore & Luikart, 1972), better adjustment to aging (Wolk & Kurtz, 1975), greater coping and less defensiveness,

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greater cognitive complexity, differentiation, sensitivity, and intellectual superiority (Kuypers, 1971, 1972). Only one study presented differing finding; Felton and Kahona (1974) found that externally perceived control was related to better adjustment of elderly individuals in an institutionalized setting.

Kuypers (1972) raised the question of whether the locus of control dimension is peripheral and easily responsive to current conditions or more central and related to earlier experiences, that is, whether the locus of control orientation of the elderly is likely to be changed by the conditions of aging. According to Rotter (1966), the expectancy of reinforcement is built up according to the individual's history of reinforcement from infancy on; once such an expectancy has been built up over many years, one would expect that it would be difficult for specific recent events to extinguish the expectancy.

Within this context, the relationship of family variables to locus of control orientation takes on importance. The family life of an individual represents a long and constant history in which patterns of interaction and mutual reinforcement between family members are established and maintained. The effects of early experience within the family on a large number of personal characteristics is well known. It is also well known that family relationships are maintained in old age (e.g., Troll, 1971), and though the relationships of the elderly with their children appear to be stronger than those with siblings, there is evidence that relationships with siblings tend to be renewed once

children mature and leave home (Laverty, 1962; Manney, 1975), and that sibling ties can be very close (Cumming & Schneider, 1961) in late life, particularly ties with sisters. Additionally, the number and kinds of siblings were found to influence the kinds of feelings and concerns about old age which elderly individuals revealed on a projective instrument (Cicirelli, 1977). In sum, the family is a source of early, long, and continuous reinforcement history for the individual that should help to develop and maintain the stable locus of control orientation found in the elderly.

One can ask what kinds of reinforcements or rewards are available from family members. Initiating an interaction with a family member can lead to satisfaction of particular needs or desires by the family member (the family member will do something or provide something the individual wants), or can provide more general reinforcement through attention, caring, warmth, acceptance, and so on, thus satisfying affective needs. Thus, the individual within the family can come to feel that his own actions and characteristics can bring about desired rewards. Obviously, not all families (or family members) are equally rewarding; some family interactions are cool and distant, unresponsive, or even punishing, so that the individual can feel alienated (Kantor & Lehr, 1975). However, the closer the individual feels to family members, the more likely he is to perceive that his actions or characteristics will have desired consequences in dealing with that family member. Other things being equal, the individual with a large

family would tend to receive more reinforcement from the family as a whole than the individual from a small family. Also, relationships with brothers would tend to be less rewarding, for brothers have been found to be more competitive and rivalrous (Adams, 1968; Sutton-Smith & Rosenberg, 1970). On the other hand, sisters (and females of the family in general), are more concerned about maintaining and preserving satisfying family relationships (Troll, 1971). By similar reasoning to that advanced for siblings, one could argue that the more children the individual has, the greater the rewards to be attained from interactions with them.

Various authors talk about the affective quality of family relationships (Bengston & Cutler, 1976; Johnson, 1978; Kantor & Lehr, 1975). Bengston and Cutler term this "cohesiveness" or "solidarity," and consider it to be made up of three components: association (the objective extent of interaction between family members), affect (subjective feelings about the relationship, such as affection, understanding, trust, and so on), and agreement (or consensus on values and beliefs). This kind of conception would appear to be useful in exploring the relationship of family variables to locus of control in old age, since one would predict that the more positive a family was on all three components, the greater the likelihood that the individual would have rewarding family interactions leading to establishment and maintenance of a more internal locus of control in old age.

Method

Subjects

The study was carried out on 200 persons (73 men and 127 women) residing in the city of Lafayette, Indiana, and ranging in age from 60-90. All were white. A random sample of city blocks was canvassed, and all persons in the age range consenting to the study were interviewed.

Measures

Data were gathered by means of an interview schedule developed for this study; the interview lasted approximately two hours. Subjects were interviewed at home.

Locus of Control. Locus of control was measured using an adaptation of Rotter's (1966) I-E Scale. One item with very low item-total correlation was deleted, along with three items dealing with school concerns, and two of the "filler" items; this resulted in an instrument containing 19 I-E and 4 "filler" items. Internal consistency reliability for this sample was .74, which compares quite favorably with the reliabilities of .65 to .79 reported by Rotter in uses of the entire scale with younger subjects. The 10-item adaptation of the scale used by Kuypers (1972) with an elderly sample was also investigated; however reliability for this sample was only .61, so it was decided to retain the longer scale. Each external response was scored one point, yielding a possible score range of 0-19. A high score on the scale indicates an external orientation, and a low score indicates an internal orientation.

Family measures. The interview-questionnaire gathered data about the subjects' siblings and adult children. A roster of family members was obtained, which yielded information about number of brothers and sisters and number of children, living and dead. Number of brothers and number of sisters were treated as separate variables, since there were reasons for hypothesizing that brothers and sisters would have differing effects on the criterion variable, while number of children was treated as a single variable. It was decided to use the numbers of living family members, since deceased family members were often lost in infancy and thus could not be expected to have psychological effects.

Other items pro' ed the frequency with which the subject sees the family member, the closeness of feeling toward the family member, and the extent of agreement about central life values; these data were gathered for the two siblings and the two children who were seen most frequently. The three scores were summed over siblings and over children to yield six scores in all. A principal components factor analysis was carried out on these six variables, and two clear factors emerged. One of these factors was made up of the three sibling variables (frequency of contact, closeness of feeling, and values agreement) and the second was made up of the three child variables. Since these factors closely paralleled the Bengston and Cutler (1975) conceptualization of family solidarity or cohesiveness, they were called "sibling cohesiveness" and "child cohesiveness," respectively.

Thus, there were five family measures used in the analysis:

1. Number of living brothers.

2. Number of living sisters.

3. Number of living children.

4. Sibling cohesiveness. A factor score made up of the three components of sibling contact, closeness of feeling and values agreement.

5. Child cohesiveness. A factor score analogous to sibling cohesiveness.

(Even though the relationship to the spouse is an important one, it was not considered here. Only about half of the subjects had a living spouse, and for many of these it was a second or third marriage; this situation would have created severe difficulties in analysis.)

Control variables. Four demographic variables which have been found in previous literature to bear a relationship to locus of control scores, and which thus should be considered as possible confounding variables in data analysis, were also obtained from the interview data. They were:

1. Age. Age in years from date of birth.

2. Sex.

3. Educational level. Subjects were asked to indicate the last year of school completed, as well as any special training. Responses were coded on a seven-point scale according to Hollingshead (1957), with "7" the highest educational level.

4. Occupational level. Subjects were asked to give their occupation and that of their spouse (both before and after retirement, if retired). Occupational level was taken as the highest occupational

level attained by either spouse, when coded according to the seven-point Hollingshead (1957) scale, where "7" is the highest occupational level. The rationale for this is that the occupational level tends to determine income level and life style of the family, as well as the status accorded all the members. Since the great majority of elderly women have never been employed outside the home, the husband's occupation is the primary determiner of their status level.

Results

Descriptive Statistics and Preliminary Analyses.

The following descriptive statistics are presented in order to provide the reader with a portrait of the elderly subjects of this study. Subjects' mean age was 71.0 years (SD = 7.5). Mean educational level was 3.30 (SD = 1.51), where "3" indicates some high school training beyond ninth grade and "4" indicates a high school graduate. Mean occupational level was 3.46 (SD = 3.46), where "3" represents skilled manual employees, and "4" includes clerical and sales workers, technicians, and owners of little businesses. The mean number of siblings born into the family of origin of the subjects was 4.80 (SD = 2.94), although only means of 1.40 sisters and 1.02 brothers remained alive at the time of the interview. On the average, subjects saw each of the two siblings with whom they had the greatest contact more than once a year but not as often as once a month. The subjects had a mean of 2.86 children (SD = 2.21), of whom 2.59 were still alive. On the average, the subjects saw each of the two children with whom they had the greatest contact slightly more often than once a month. Felt closeness and value consensus were

also greater for children than for siblings. Finally, the mean locus of control score was 8.21 (SD = 3.71), indicating a slightly more internal than external orientation on the average.

Several preliminary analyses were made to determine whether the two sexes should be pooled for analysis or data should be analyzed by sex. In t-tests, sex differences were found on only two of the variables. Women (M = 71.8) were slightly older than the men (M = 69.6) in this sample ($t = 2.11$, $p < .05$). Also, there was a significant sex difference in locus of control ($t = 3.22$, $p < .01$), with men showing a more internal orientation (M = 7.12) than women (M = 8.83). Correlations of the predictor variables (demographic and family variables) with locus of control were not significantly different for the two sexes, however, and there was no heterogeneity of regression. Therefore, data for the two sexes were combined for the regression analysis.

(Finally, no significant differences were found in the data collected by the eight interviewers in one-way analyses of variance carried out for each of the variables.)

Correlations and Regression Analysis.

Simple correlations of each of the control and family variables with locus of control scores are presented in Table 1.

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Insert Table 1 about here

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In carrying out the regression analysis, age and the two socioeconomic status variables (educational and occupational level)

were entered into the regression equation first. After the variance associated with these background variables was removed, the set of family variables was entered into the regression equation.

Age and the socioeconomic status variables together accounted for 16% of the variance in locus of control ($\underline{R}$ = .40), with greater age associated with externality, and higher educational and occupational status associated with internality. When the set of family variables was added, the number of living brothers, sibling cohesiveness, and child cohesiveness were significant predictors, increasing the percentage of variance accounted for to 24% and the multiple correlation coefficient to .49. (See Table 1.) As sibling cohesiveness and child cohesiveness increased, there was greater internality in locus of control scores, while an increased number of brothers was associated with greater externality.

Discussion

In the regression analysis, the set of family variables explained a small but significant fraction of additional variance in the locus of control beyond that explained by age and the socioeconomic status variables. Of the three family size variables (number of living brothers, number of living sisters, and number of children), only the number of living brothers was significantly related to locus of control, being associated with greater externality. It was hypothesized that relationships with brothers would be less rewarding, due to the greater competitiveness and sibling rivalry of brothers (Adams, 1968; Rosenberg & Sutton-Smith, 1970); thus those with more brothers would be less likely to believe that their own actions would bring about reinforcement. Then, too, family relationships in adulthood are more likely to be maintained by females in the family (Troll, 1971); conversely, where there are more brothers, one would expect weaker family ties and less reinforcement from family.

Both of the family cohesiveness variables (sibling and child) were significant predictors of locus of control, and were associated with greater internality. Since the family size variables were not related to internality as hypothesized, it appears that it is the quality of the relationships with family that is important in adulthood, not just family size. Where the elements of cohesiveness are present (frequency of contact, feelings of closeness, and agreement on central life values), the elderly individual's efforts at family interaction

are likely to be reinforced by satisfaction of affective needs as well as other needs and desires.

It has long been known that family cohesiveness is valuable in old age, providing emotional support (and often material help where needed). The results of this study suggest that family cohesiveness may function as part of a more general adaptive mechanism in old age, helping to maintain a more internal locus of control expectancy. The internal expectancy, in turn, means that the aging individual still feels in control of events and hence is more motivated to act to improve conditions for himself.

The basic conclusion coming out of this study is that cohesiveness between the elderly and their children and siblings is important to the maintenance of an internal locus of control in old age. This leads to the hypothesis that family cohesiveness, in general, is related to locus of control. This hypothesis should be explored further with studies dealing with other parts of the total family structure (spouses, grandchildren, cousins, and so on). To the extent that this general hypothesis is supported, family cohesiveness, operating through locus of control expectancy, can be considered to be an adaptive mechanism in later life.

In a practical sense, if ways could be found to increase family cohesiveness, perhaps through helping the elderly to remain in closer contact with children, siblings, and other family members (e.g., some sponsored activity to bring them together), the sense of personal effectance of the elderly individual could be maintained along with greater activity, self-confidence, and adaptability.

Summary

An internal locus of control orientation in the elderly has been associated with greater activity, self-confidence, and adaptability. The present study sought to determine how family variables are related to locus of control, under the hypothesis that a larger and more cohesive family would provide greater reinforcement for the elderly person's actions. The study was carried out on 73 men and 127 women ranging in age from 60-90, contacted through block sampling procedures. The Rotter I-E scale was administered, and information about numbers of children and siblings, frequency of contact, closeness of feeling, and value consensus was obtained in an interview, along with demographic data. Number of living brothers, number of living sisters, number of children, sibling cohesiveness, and child cohesiveness (where cohesiveness was a factor score made up of contact, feeling closeness, and values agreement) were entered into a regression analysis to predict locus of control scores, after effects of age and socioeconomic status (educational and occupational levels) had been removed. Number of living brothers and the two cohesiveness variables were weak but significant predictors, together accounting for 8% of the variance in locus of control. The number of brothers was associated with greater externality, while the two cohesiveness scores were related to greater internality. Cohesiveness may thus function as part of a more general adaptive mechanism in old age, helping to maintain a more internal locus of control. In turn, the elderly individual still feels in control of events and hence is more motivated to act to improve conditions for himself.

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Footnotes

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Table 1

Summary of Regression Analysis

Variable	Simple r	Regression Coefficient	Multiple R	R^2
Control Variables				
Age	.25	-.0248		
Educational level	-.35	-.167		
Occupational level	-.25	-.137	.40	.16
Family Variables				
No. of living brothers	.23	.523		
No. of living sisters	-.11	----		
Sibling cohesiveness	-.24	-.0370		
No. of children	-.04	----		
Child cohesiveness	-.21	-.0217	.49	.24